

Remarks

In the office action, the drawings were objected to. The disclosure was also objected to for grammatical errors and for failing to provide proper antecedent basis. Furthermore, claim 6 was objected to for a grammatical error. In addition, claim 19 was rejected under 35 U.S.C. § 112, second paragraph for being indefinite. Claims 1 and 3-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Soviet Union Patent No. SU 510942 to Kravchenko ("Krav"). Claims 1-10 and 12-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Reissue Patent No. Re 30,381 to Ries ("Ries"). Claims 1, 3-5, 7-11, and 13-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,186,686 to Staples ("Staples"). Finally, claims 1, 3-6, 8-10, and 13-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,507,692 to Chivari ("Chivari").

In this response, Applicants have amended Figs. 1 and 4 of the drawings, several paragraphs of the specification and claims 1-4, 6, 11, 17, and 18. Applicants have cancelled claims 8-10, 12 and 19. Claims 1-7, 11, and 13-18 remain pending in this application. Applicants respectfully request reconsideration and withdrawal of objections and rejections in view of the amendments and following remarks.

A. Objections to the Drawings:

The drawings were objected to because: Reference numeral "1" was used in Fig. 1-3 to identify a coupling and reused in Fig. 4 to identify a modified coupling; the limitations of claims 3, 4 and 14 were not shown; a "blocking conical seating" of claim 12 was not shown; and an inappropriate pattern was used to depict elastomer layer 20.

Applicants have amended Figs. 1 and 4 of the drawings to show the proper hatched pattern for elastomer layer 20. Fig. 4 was further amended to change the reference numeral "1" to --1'-- and to show the spherical bearing 10' recited in claim 14. Appropriate changes were made to the specification to conform with those changes to Fig. 4. In addition, Applicants have amended the specification to more clearly point out that reference numbers 2 and 3 in the drawings represent shaft ends of the driven and driving machine parts, and that the shaft ends represent portions of a shaft or wheel hub of the driven or driving machine parts.

Applicants have cancelled claim 12.

Withdrawal of the objections to the drawings is respectfully requested.

B. Objections to the Specification:

The disclosure was also objected to because the first sentence of paragraph [0019] was unclear. In addition, the specification was objected to for failing to provide sufficient antecedent basis for several features recited in the claims. Specifically, the Examiner labeled each of the deficiencies as a. through f. in paragraph 4 of the office action.

Applicants have amended paragraph [0019] to clarify the meaning of the first sentence. Applicants have also amended paragraph [0005] to delete an extended blank portion in the center of the paragraph so as to clarify that all of the text preceding paragraph [0006] is part of paragraph [0005].

Applicants submit that sufficient antecedent basis is provided for each of the features of the claims objected to by the Examiner. Applicants note that antecedent basis is not required to be found in the DETAILED DESCRIPTION section of the specification. Specifically, antecedent basis is provided as follows:

- a. for “at least three identical articulate levers”: at paragraphs [0001] and [0005];
- b. for claim 1, lines 7+ and claim 2, lines 7+: at paragraph [0005] and [0019]; for claim 6: at paragraph [0019] and [0009]; for claims 14 and 16: at paragraph [0009]; and for claim 19: at paragraph [0012];
- c. for claim 3, which has been amended to refer to “one of a shaft and a wheel hub”: at paragraphs [0002], [0005], and [0021];
- d. for claim 4, which has been amended to refer to “one of a shaft and a wheel hub”: at paragraphs [0002], [0005], and [0021];
- e. claim 12 has been cancelled; and
- f. for claim 17, which has been amended to clarify: at paragraph [0010].

Withdrawal of the objections to the specification is respectfully requested.

C. Objections to the Claims:

Claim 6 was objected to for a grammatical error.

Applicants have amended claim 6 to replace the word “includes” with “levers include” so as to correct a typographical omission.

Withdrawal of the objection to claim 6 is respectfully requested.

D. Rejections under 35 U.S.C. §112, Second Paragraph:

Claim 19 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Applicants have cancelled claim 19. Withdrawal to the rejections to claim 19 is respectfully requested.

E. Rejections under 35 U.S.C. §102(b) based on Ries and Chivari:

Claims 1-10 and 12-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ries and claims 1, 3-6, 8-10, and 13-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chivari.

Ries describes a flexible rotary coupling including first and second members connected to a rotary drive and a rotary driven means, and an elongate member disposed intermediate the first and second members. A plurality of links and connecting pins connects the elongate member with the first and second members. Each link includes two joints for receiving the connecting pins. The joints define axes that are parallel to the axes of the first, second, and elongate members.

Chivari describes a coupling for non-aligned rotating parts using links 16 and 18. Each of links 16 and 18 include two joints for receiving pins that define axes parallel to the axis of the shaft.

Applicants have amended claim 1 to include all of the limitations from claims 8-10 and 12 and to clarify the relationship between the joint axes and the shaft axis. Applicants have cancelled claims 8-10, and 12. Claim 2 was amended to clarify the relationship between the joint axes and the shaft axis and claims 11 and 18 were amended to depend from claim 1.

As amended, independent claim 1 recites a coupling for connecting a driving machine part and a driven machine part that includes an intermediate shaft defining a shaft axis and “at least three identical articulated levers, each lever having two lever ends and an elastic joint defining a joint axis disposed at each lever end.” In addition, claim 1 recites that “the joint axes of each lever are disposed perpendicular to the shaft axis.”

Applicants respectfully submit that neither Ries nor Chivari describe levers having elastic joints that describe a joint axis perpendicular to any shaft axis. On the contrary, the links

described in both Ries and Chivari (as clearly shown, for example, in Figs. 1 and 2 of Ries and in Figs. 1 and 2 of Chivari) are disposed so that the bearings are aligned with the axis of the shaft. In other words, the joint axes in each case are disposed parallel, and not perpendicular, to the shaft axis.

Withdrawal of the rejections under 35 U.S.C. § 102(b) based on Ries and Chivari is respectfully requested.

F. Rejections under 35 U.S.C. §102(b) based on Staples and Krav:

Claims 1, 3-5, 7-11, and 13-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Staples. Claims 1 and 3-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Krav.

Staples describes a link for use in a link-type rotary coupling in which torque is transferred between drive and driven shafts. Each shaft includes a hubs 15 and 16 having upstanding trunions 30 and 31 a connecting body, such as pin 32 passes through the trunions 30 and 31 and transversely through the link 27. Column 3, lines 29-37.

Krav describes a coupling for use in machinery that includes two coaxial half couplings 1 and 2 with projecting cylindrical fingers 3. The fingers on adjacent half couplings are connected by carriers with flexible joints.

As amended, claim 1 recites a coupling for connecting a driving machine part and a driven machine part, that includes an intermediate shaft and a first articulated lever coupling. The intermediate shaft and each of the driving and driven part are recited as including a connecting flange and “a radially and axially protruding” claw, each “having a plurality of” bearing journals. The first articulated lever coupling includes at least three articulated levers, each having an elastic joint at each end. Furthermore, claim 1 recites that “each of the plurality of . . . bearing journals includes a conical shape for a non-blocking seating with the elastic joints.”

Support for the radially and axially extending claws 15 and 16 is provided in applicants specification, for example, in Figs. 1 and 2 (reference numbers 15 and 16) and at paragraphs [0008] and [0018] through [0020]. The connecting flanges 12 and 14 together with protruding claws 15 and 16 permit the claws to nearly penetrate one another, so that bearing journals 11 and 13 come to lie in the same radial plane 24. The non-blocking conical seating, described, for

example, at paragraphs [0008] and [0018] and shown in the drawings, provides an advantages over the prior art in that it facilitates dismantling and maintenance.

Applicants respectfully submit that neither Staples nor Krav describe the features of connecting flanges including a radially and axially protruding claw. Furthermore, neither reference describes a plurality of bearing journals having a conical shape for a “non-blocking seating with the elastic joints.”

Staples, which furthermore does not describe an intermediate shaft, does not include any structure which could be deemed to correspond to a radially and axially protruding claw. The elastic joints of the Staples links are connected to cylindrical pins and not to conical bearing journals.

Similarly Krav does not appear to describe or show flanges having radially and axially protruding claws on both of the half-couplings 1 and 2. To the extent that the radial extensions of half couplings 1 and 2 shown in Fig. 1 are deemed to be flanges, they do not include a radially and axially extending claw. See in particular half-coupling 2 in Figs. 1 and 3 of Krav. Moreover, Krav does not describe bearing journals having a conical shape for “non-blocking seating with the elastic joints.” On the contrary, Krav illustrates six different variations for the fingers 3 and the flexible joints 5 in Figs. 3-8. In each case, the fingers are cylindrical in shape. The only examples showing a conical bearing shape (Figs 7 and 8) show the combination with a cylindrical, not a conical finger 3. In fact, if the fingers 3 in Figs. 7 and 8 had a matching conical shape, the seating would be a blocking, instead of non-blocking as recited in claim 1.


Withdrawal of the rejections under 35 U.S.C. § 102(b) based on Staples and Krav is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is now in condition for allowance.

Respectfully submitted,

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Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 1 and 4. These sheets replace the original sheets including Figs. 1 and 4. In Figs. 1 and 4 a hatching pattern has been added to depict the elastomer layer 20. In Fig. 4, reference number "1" has been changed to --1'--. Furthermore, a spherical bearing 10' has been added.

Attachments: Two Replacement Sheets